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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/546,936	04/11/2000	Jui-Ping Li	1056-52	4254

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EXAMINER	
MOORE, KARLA A	
ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/546,936	LI ET AL.
	Examiner	Art Unit
	Karla Moore	1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15,16,24 and 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15,16,24 and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,246,500 to Samata et al. in view of Japanese Patent No. 58-197724 to Ichikawa.

4. Samata et al. disclose an apparatus, in Figure 3, for forming a film on a wafer in a semiconductor process substantially as claimed and comprising: an inner part (12) for mounting therein said wafer; an outer part (11) covering said inner part wherein a gas inlet (area surrounding 21) and a gas outlet (area surrounding 7) are formed between said inner part and said outer part; and a gas-feeding pipe (21) partially mounted inside said gas inlet for adjusting a feeding gas flowing therein in the direction toward a vertical wall of said outer part instead of said inner part to prevent particles form said inner part from peeling off, whereby said feeding gas is homogeneously warmed before reaching said inner part. The gas contacts the outer tube, which is adjacent to the heater thereby heating the gas homogeneously before reaching said inner part.

5. However, Samata et al. fails to teach said plurality of holes are gradient holes varying regularly from down to top.

6. Ichikawa teaches the use of gradient holes varying regularly from down to top for the purpose of uniformily supplying a gas (abstract).

7. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a gas feeder with gradient holes in Samata et al. and Shimahara et al. in order to uniformily supply a gas as taught by Ichikawa.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,246,500 to Samata et al. in view of Japanese Patent No. 05-090186 to Jinnai.

9. Samata et al. disclose an apparatus, in Figure 3, for forming a film on a wafer in a semiconductor process substantially as claimed and comprising: an inner part (12) for mounting therein said wafer; an outer part (11) covering said inner part wherein a gas inlet (area surrounding 21) and a gas outlet (area surrounding 7) are formed between said inner part and said outer part; and a gas-feeding pipe (21) partially mounted inside said gas inlet for adjusting a feeding gas flowing therein in the direction toward a vertical wall of said outer part instead of said inner part to prevent particles form said inner part from peeling off, whereby said feeding gas is homogeneously warmed before reaching said inner part. The gas contacts the outer tube, which is adjacent to the heater thereby heating the gas homogeneously before reaching said inner part.

10. However, Samata et al. fail to teach the gas-feeding pipe having an exit with a normal vector pointing to the outer part.

11. Jinnai teaches the use of a gas feeding pipe constructed with an exit with a normal vector pointing towards a surface that the gas is meant to flow (see Figures 1-3 and 5; abstract) for the purpose of preventing an opposing surface from coming into contact directly with the gas.

12. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a gas feeding pipe constructed with an exit with a normal vector pointing towards a surface that the gas is meant to flow in Samata et al. in order to prevent an opposing surface from coming into contact directly with the gas as taught by Jinnai.

13. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Samata et al. and Ichikawa as applied to claim 15, and further in view of U.S. Patent No. 6,139,642 to Shimahara et al.

14. Samata et al. and Ichikawa disclose the invention substantially as claimed and as described below.

15. However, Samata et al. and Ichikawa fail to teach a flow controller connected to the gas-feeding pipe.

16. Shimahara et al. teach the use of a flow rate controller (column 16, rows 22-24) mounted to a gas feeder for the purpose of controlling a flow rate in such a manner as to reach a value, which is preliminarily determined.

17. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a mass flow controller mounted to the gas feeder in Samata et al. and Ichikawa in order to control a flow rate in such a manner to reach a value which is preliminarily determined as taught by Shimahara et al.

18. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Samata et al. and Jinnai as applied to claim 16, and further in view of U.S. Patent No. 6,139,642 to Shimahara et al.

19. Samata et al. and Jinnai disclose the invention substantially as claimed and as described below.

20. However, Samata et al. and Jinnai fail to teach a flow controller connected to the gas-feeding pipe.

21. Shimahara et al. teach the use of a flow rate controller (column 16, rows 22-24) mounted to a gas feeder for the purpose of controlling a flow rate in such a manner as to reach a value, which is preliminarily determined.

22. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a mass flow controller mounted to the gas feeder in Samata et al. and Jinnai in order to control a flow rate in such a manner to reach a value which is preliminarily determined as taught by Shimahara et al.

Response to Arguments

23. Applicant's arguments filed 11/28/03 have been fully considered but they are not persuasive.

24. With respect to claim 15, Applicant has two arguments. The first argument appears to be that the geometrical arrangement of the holes "has its meanings". No attempt was made with respect to this particular argument to point out why the structural arrangement is not anticipated by Ichikawa, which also has a reason for constructing a gas-feeding pipe with "a plurality of holes with their size varying regularly from down to top". The second argument relies on the fact that the overall layout of the Ichikawa apparatus differs from that of the claimed invention. Examiner notes that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In the rejections of the previous and current office actions, Ichikawa is used in combination with the Samata et al. reference, which does in fact have a similar layout to that of the claimed invention. Ichikawa is relied upon to teach that a gas hole arrangement on a vertical gas-supplying pipe where the hole size varies from "down to top" has advantages in that it enables a gas to be uniformily supplied from each of the holes in the pipe regardless of vertical position of the hole. This concept is applicable to the current invention because a vertical gas pipe is used to supply a gas and a gas-feeding pipe with the disclosed configuration would enable a gas to be uniformily supplied.

25. With respect to claim 16, again, Examiner points out that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In the rejections of the previous and current office actions, Jinnai is used in combination with the Samata et al. reference, which does in fact have a similar layout to that of the claimed invention. Jinnai fairly teaches using a gas feeding pipe with an exit having a normal vector pointing towards a surface in the direction a gas is to flow and facing away from a surface to be shielded from gas flow. Samata et al. fairly teaches the claimed gas flow directions. Jinnai is relied upon as a reference that fairly teaches an alternative method for accomplishing the desired gas flow conditions.

Conclusion

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 571.272.1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

P. Hassanzadeh

km
20 February 2004

Parviz Hassanzadeh
Primary Examiner
Art Unit 1763